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EXAMINER

GOINS, DAVETTA WOODS

ART UNIT PAPER NUMBER

2632

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/056,640

Applicant(s)

GUNDERSON ET AL.

Examiner

Davetta W. Goins

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-83 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 63-73 is/are allowed.
- 6) ☒ Claim(s) 1-62 and 74-83 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>5</u> . | 6) <input type="checkbox"/> Other: _____ |

Allowable Subject Matter

1. Claims 67-73 are allowed.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-3, 5, 8, 13-15-19, 22, 23, 26, 27, 28, 30, 39-43, 44, 47, 48, and 74 are rejected under 35 U.S.C. 102(b) as being anticipated by Adams (US Pat. 5,528,217).

In reference to claims 1, 22, 43, 48, 74, Adams discloses a) the claimed sensor, which is met by transducer/receiver device 22 (col. 4, lines 11-34), b) the claimed a sensor control unit coupled to the sensor, the sensor control unit having a signal processor to determine a presence of a hazard and a controller to control multiple sensors, the sensor control unit capable of determining an object within a predetermined field of view for each sensor coupled thereto, and within a predetermined detection range, which is met by microprocessor 89 connected to a plurality of ultrasonic acoustical transducer/receiver devices 22 such that once an exterior object has been detected at one of the devices 22, the microprocessor 89 will operate the warning display system 26 (col. 4, lines 11-34; col. 5, lines 25-64; Figure 4), c) the claimed driver vehicle interface coupled to the sensor control unit, the driver vehicle interface configured to receive signals from

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the sensor control unit representative of objects determined by the sensor control unit, which is met by warning system 26; specifically, a display including an array of light-emitting diodes that may become illuminated indicating distance ranges between the surfaces of the vehicles and a remote exterior object. The color will represent how many feet from the surface of the vehicle “in an area where an acoustical transducer/receiver 22 is disposed” (col. 5, lines 56-67; col. 6, lines 1-16; Figure 6), and d) the claimed display unit coupled to the driver vehicle interface capable of providing a visual representation of objects determined by the sensor control unit, wherein the trailer based collision warning system is adapted for mounting to a trailer, which is met by visual displays including a numeric display 88 and multi-color display 42 as well as providing audio sound or audio messages; the plurality of ultrasonic acoustical transducer/receiver devices 22 located on a conventional cargo trailer 18 (col. 4, lines 35-52).

In reference to claims 2, 23, 44, Adams discloses the claimed predetermined detection range is programmable for each sensor, which is met by a microprocessor 89 allowing the distance ranges to be adjusted such that the sensors are actuated in different distance ranges (col. 6, lines 1-17).

In reference to claims 3, 27, 28, 30, Adams discloses the claimed based collision warning system receives power and signals from a cable coupled to a trailer for providing power and signals when the trailer is coupled to a tractor, which is met by wiring conductors available from the various receptacle connections of the vehicles such as a tractor trailer arrangement; a battery 16 grounded by connection 17 to the chassis for the vehicle (col. 4, lines 45-58).

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In reference to claim 5, Adams discloses the claimed control unit is capable of controlling a plurality of individual sensors including one or more types of sensors, which is met by a plurality of ultrasonic acoustical transducer/receiver devices 22 (col. 4, lines 11-34).

In reference to claims 8, 26, 47, Adams discloses the claimed interface unit includes a processor and memory for directing the sensor control unit receiving information from the sensor control units, and transferring detection information to the display unit, which is met by microprocessor 89 (col. 6, lines 1-17).

In reference to claims 13-15, 17-19, Adams discloses the claimed plurality of lights, a housing containing the plurality of lights for providing weather protection and mounting to a trailer; and a signals interface coupled to the plurality of lights for receiving signals to activate the individual lights of the plurality of lights, wherein the plurality of lights are configured to provide detection information and status information when activated, which is met by a numerical display 88 and multi-color display 42 including a plurality of light-emitting diodes (LED) to represent the area in which the detectors 22 have determined an object to be located within the preselected distance range (col. 5, lines 56-64).

In reference to claim 16, Adams discloses the claimed signals interface comprising individual signal conducting lines coupled to the individual lights of the plurality of lights, which is met by the wiring conductors available from the various receptacle connections (col. 4, lines 35-52).

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In reference to claims 39, Adams discloses the claimed information display to communicate warning information to a driver of a vehicle; and an adaptor capable of being coupled to an auxiliary power outlet of the vehicle, wherein the adaptor includes a power line carrier interface circuit for receiving collision warning information superimposed on a vehicle battery power wiring, the collision warning information being communicated to the driver by the information display, which is met by a plurality of ultrasonic acoustical transducer/receiver devices 22 wired to the trailer of the vehicle system in which a nose-box adaptor 30 is disposed at the rear of tractor 12, illustrating the wiring conductors available from the various receptacle connections of the vehicles such as a tractor trailer arrangement, including a ground connection and other conductors and an auxiliary or unused receptacle 32 that may be used for access to the electrical wiring system (col. 4, lines 35-52).

In reference to claims 40, 41, Adams discloses the claimed information display includes a speaker for providing information audibly, which is met by warning device 28 providing two levels or audio or sound messages (col. 4, lines 35-52).

In reference to claim 42, Adams discloses the claimed speaker audibly providing information indicating the status conditions, right side indication, left side indication, rear indication, and ranging information, which is met by the audible alarm circuits and devices 60 and 62 are able to generate the multilevel warning signals associated with distances (col. 6, lines 1-16).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 4, 6, 7, 29, 75-78, are rejected under 35 U.S.C. 103(a) as being unpatentable over Adams in view of Kam (US Pat. 6,225,918 B1).

In reference to claims 4, 6, 29, 75-78, Adams does not disclose the claimed display unit includes a set of lights capable of being mounted on a right side of a trailer, and another set of lights capable of being mounted on a left side of the trailer, both sets of lights viewable by a driver of a tractor in the tractor side view mirrors. Kam discloses a detector means 45, radar, ultrasonic waves, etc., or a spaced plurality of detector means 45 that may be placed along a vehicle 19, which can be a trailer (col. 4, line 49-61; col. 6, lines 19-45). Upon the detector means 45 detecting an object within a target area 17, the brake lights 29, 31, and 33 are illuminated (col. 5, lines 20-45). Since Adams discloses warning displays located in the cab of the trailer to indicate to the driver of detected objects, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teaching of lights mounted on any side of the trailer, such as the warning indicators disclosed by Kam, with the system of Adams, to ensure that the driver is capable of determining which side of the vehicle the object has been detected.

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In reference to claim 7, although Adams does not disclose the claimed first sensor control unit controlling a plurality of radar sensors, a second sensor control unit controlling a plurality of radar sensors, a third sensor control unit, controlling two ultrasonic sensors and a radar sensor, wherein the sensors of the third sensor control unit are capable of being rear mounted to a trailer, the sensors of the first sensor control unit are adapted to mounting to a right side of the trailer, the sensors of the second sensor control unit are adapted to mounted to a left side of the trailer, he does disclose a microprocessor 89 allowing the distance ranges to be adjusted such that the sensors are actuated in different distance ranges (col. 6, lines 1-17). Kam discloses a detector means 45, radar, ultrasonic waves, etc., or a spaced plurality of detector means 45 that may be placed along a vehicle 19, which can be a trailer (col. 4, line 49-61; col. 6, lines 19-45). Since Adams discloses a plurality a plurality of ultrasonic acoustical transducer/receiver devices 22 along the trailer, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teaching of using any type of proximity sensing means that are well known in the art such as radar, as disclosed by Kam, or any number of other distance detectors to ensure that the trailer indication is capable of detecting and displaying any detected object to the driver.

6. Claims 9, 12, 24, 25, 45, 46, are rejected under 35 U.S.C. 103(a) as being unpatentable over Adams in view of Smithline (US Pat. 5,734,336).

In reference to claims 9, 12, 24, 25, 45, 46, Adams does not disclose the claimed vehicle interface and the sensor control unit perform a built-in test function each time power is applied to

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the trailer based collision warning system and continue to perform built-in test functions while the trailer based collision warning system is in operation, and wherein a malfunction in the trailer based collision warning system is reported by the driver vehicle interface through the display unit. Smithline discloses a collision avoidance system including a plurality of ultrasonic acoustic transducers and receiving means to detect the range of objects, displays mounted on the vehicle mirrors 110, 120a microprocessor programmed to continuously perform diagnostic tests of the system (col. 3, lines 6-10; col. 4, lines 10-63). Since both Adams and Smithline disclose programmable microprocessors, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teaching to perform test functions, as disclosed by Smithline, with the system of Adams, to ensure that the system will notify the driver upon detection of a malfunction while detecting the proximity around the trailer.

7. Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Adams in view of Markus (US Pat. 6,421,081 B1).

In reference to claims 10, 11, Adams does not disclose the claimed system includes multiple video cameras connected to a video switch, which is controlled by the driver vehicle interface. Markus discloses a vehicle including a plurality of buttons 57 positioned for controlling the movement of camera 12; a video screen 32 is mounted on the dashboard to allow the driver to view what's captured by the video camera 12 (col. 7, lines 33-65). Since Adams discloses a system comprising a plurality of ultrasonic devices surrounding the trailer for detecting the proximity of nearby objects, it would have been obvious to one of ordinary skill in the art at the

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time of the invention to incorporate the teaching of including a video switch, camera, and display means, as disclosed by Markus, to allow the driver the capability of viewing the actual object that has been detected.

8. Claims 20, 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Adams.

In reference to claims 20, 21, although Adams does not specifically disclose the claimed plurality of lights including four LEDs providing seven ranges of distance information, he does disclose that the LED indicators can give an indication once an object is detected between 10 to 15 feet, 0 to 5 feet, or 5 to 10 feet (col. 5, lines 65-67; col. 6, lines 1-17). A microprocessor 89 can be adjusted to select any ranges desired (col. 6, lines 12-16). Since Adams discloses a programmable microprocessor to select any desired range of distance, it would have been obvious to one of ordinary skill in the art at the time of the invention to include seven ranges or any number of ranges by the driver to allow the driver the capability of determining at what distance the trailer is near an object before he's warned.

9. Claims 31-38, are rejected under 35 U.S.C. 103(a) as being unpatentable over Adams in view of Paranjpe (US Pat. 6,339,369 B1).

In reference to claims 31-37, Adams does not disclose the claimed audio unit including a first wireless data transceiver coupled to the driver vehicle interface for receiving information from the sensor control units, the first wireless data transceiver capable of transmitting the received

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information. Paranjpe discloses a plurality of remote units 4 mounted along the side of a vehicle; the remote units 4 used to detect an object within a certain distance; a warning indicator module 50 communicates wirelessly with the remote units 4. Power source 21 for the system can comprise of a battery 22, solar cell 23, or an external power jack 24 (col. 5, lines 34-54). Since both Adams and Paranjpe disclose an object detection device for a vehicle, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teaching of using wireless data transceivers coupled to the driver vehicle interface, as disclosed by Paranjpe, with the system of Adams, to allow the transceiving units to be placed at any location wanted by the driver.

In reference to claim 38, Adams discloses the claimed speaker audibly provides information indicating status conditions, right side indication, left side indication, rear indication, and ranging information, which is met by a numeric display 88 and multi-color display 42 as well as providing audio sound or audio messages (col. 4, lines 35-52).

10. Claims 79, 80, 82 rejected under 35 U.S.C. 103(a) as being unpatentable over Adams in view of Wortham (US Pat. 5,905,433) in view of Markus.

In reference to claim 79, Adams discloses the claimed information display to communicate warning information to a driver of a vehicle and an adaptor capable of being coupled to an auxiliary power outlet of the vehicle, which is met by a warning system 26, including visual display 42 and an audio warning device 28; the entire collision device on the trailer includes

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wiring conductors that are connected to a nose-box adaptor 30 disposed at the rear of tractor 12 (col. 4, lines 35-52). Adams does not specifically disclose the claimed wireless receiver for receiving collision warning information. Wortham discloses a control unit 41 located on-board trailer 12 connected to a plurality of inputs; a trailer transducer unit 22 may determine the distance between a trailer 12 and any object and communicate with a vehicle transducer unit 24 upon a detected alarm event and display information on the interface of relay unit 34 that's connected to transducer unit 24 (col. 4, lines 12-67; col. 5, lines 1-20, 63-67; Figure 2). Markus discloses a vehicle including a plurality of buttons 57 positioned for controlling the movement of camera 12; a video screen 32 is mounted on the dashboard to allow the driver to view what's captured by the video camera 12 (col. 7, lines 33-65). Since both Adams and Wortham disclose sensors used to detect an object/obstacle from a trailer and produce an alarm to the driver, and Adams specifically detects the proximity of nearby objects, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teaching of using wireless communication between, as disclosed by Wortham, as well as include a video switch, camera, and display means, as disclosed by Markus, to allow easy retrofit capability for a number of trailers as well as allow the driver the capability of viewing the actual object that has been detected.

In reference to claims 80, Adams discloses the claimed information display includes a speaker for providing information audibly, which is met by warning device 28 providing two levels or audio or sound messages (col. 4, lines 35-52).

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In reference to claim 82, Adams discloses the claimed speaker audibly providing information indicating the status conditions, right side indication, left side indication, rear indication, and ranging information, which is met by the audible alarm circuits and devices 60 and 62 are able to generate the multilevel warning signals associated with distances (col. 6, lines 1-16).

11. Claims 49-57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Adams in view of Coulthard (US Pat. 5,825,286).

In reference to claims 49-56, Adams does not disclose the claimed direction of motion sensor to provide direction information to the sensor control units or the driver vehicle interface.

Coulthard discloses a vehicle monitoring system including an acceleration sensor and vibration sensor 280 for detecting the change of movement in any direction (col. 12, lines 16-31). Since both Paranjpe and Coulthard disclose vehicle systems for monitoring it's surroundings, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teaching of an acceleration sensor for detecting motion, as disclosed by Coulthard, with the system of Adams, to ensure that the drive is capable of determining the rate at which an object is traveling in relation to the trailer.

In reference to claim 57, although Adams does not specifically disclose the claimed predetermined period of time stored before a collision is about four minutes, he does disclose a programmable microprocessor 89 (col. 6, lines 1-17). Since Adams discloses a programmable microprocessor, it would have been obvious to one of ordinary skill in the art at the time of the

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invention to incorporate a time period before which the driver would like to be notified to prevent any false warnings.

12. Claims 58-62 are rejected under 35 U.S.C. 103(a) as being unpatentable over Adams in view of Coulthard as applied to claim 55 above, and further in view of Adams in view of Paranjpe.

In reference to claims 58-60, 62 Adams does not disclose the claimed wireless communication. Paranjpe discloses a plurality of remote units 4 mounted along the side of a vehicle; the remote units 4 used to detect an object within a certain distance; a warning indicator module 50 communicates wirelessly with the remote units 4. Power source 21 for the system can comprise of a battery 22, solar cell 23, or an external power jack 24 (col. 5, lines 34-54). Since both Adams and Paranjpe disclose an object detection device for a vehicle, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teaching of using wireless data transceivers coupled to the driver vehicle interface, as disclosed by Paranjpe, with the system of Adams, to allow the transceiving units to be placed at any location wanted by the driver.

In reference to claim 61, although Adams does not disclose the claimed information is stored in the memory of the driver vehicle interface in a black box recorder coupled to the driver vehicle interface, he does disclose a programmable microprocessor 89 (col. 6, lines 1-17). Since Adams discloses a programmable microprocessor, it would have been obvious to one of ordinary skill in

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the art to store information in a black box coupled to the vehicle interface to allow collision data to be retrieved at a later date.

13. Claims 81, 83 are rejected under 35 U.S.C. 103(a) as being unpatentable over Adams in view of Wortham in view of Markus as applied to claim 79 above, and further in view of Smithline.

In reference to claims 81, 83, neither Adams, Wortham, nor Markus disclose the claimed built-in test communicated through a speaker. However, Adams discloses an audible system in which messages can be heard (col. 4, lines 35-52). Smithline discloses a collision avoidance system including a plurality of ultrasonic acoustic transducers and receiving means to detect the range of objects, displays mounted on the vehicle mirrors 110, 120a microprocessor programmed to continuously perform diagnostic tests of the system (col. 3, lines 6-10; col. 4, lines 10-63). Since both Adams and Smithline disclose programmable microprocessors, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the teaching to perform test functions, as disclosed by Smithline, with the system of Adams, to ensure that the system will notify the driver upon detection of a malfunction while detecting the proximity around the trailer.

APPLICANT'S ARGUMENTS

1) The Applicant argues that there's no teaching or suggestion in Adams of a distance ranging circuit including a signal processor to determine a presence of a hazard.

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2) The Applicant states that the driver interface unit is not adapted for mounting to a trailer.

3) The Applicant cannot find a teaching or suggestion in Adam for a trailer based visual display unit having multiple indicator lights for displaying status and parametric information associated with a trailer

EXAMINER'S RESPONSE

1) Adams discloses a distance ranging circuit 46, which is part of a microprocessing unit 89 (see Figure 4), that receives a signal as to the distance between an exterior object 19 that is reflected by one of the plurality of ultrasonic acoustical transducer/receivers 22, located on the trailer 18. Upon detection of the exterior object 19, the microprocessor 89 sends the signal to the warning display system 26 to allow the driver to visually determine the location of the object with respect to the location of the transducer/receiver 22 (col. 5, lines 55-67; col. 6, lines 1-16; Figures 4 and 6).

2) The Applicant's claim 1 does not state that the driver interface unit is adapted for mounting to a trailer, only the "trailer based collision warning system is adapted for mounting to a trailer." Adams teaches a complete hazard/collision warning system that's adapted for mounting to a trailer 18. The Applicant is advised to specifically claim the actual "driver interface" as being mounted on the trailer.

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14. Applicant's arguments with respect to claims 1-83 have been considered but are moot in view of the new ground(s) of rejection.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Davetta W. Goins whose telephone number is 703-306-2761.

The examiner can normally be reached on Mon-Fri with every other Fri. off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel Wu can be reached on 703-308-6730. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9306 for regular communications and 703-872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-7666.

Davetta W. Goins
Primary Examiner
Art Unit 2632



D.W.G.
April 16, 2004